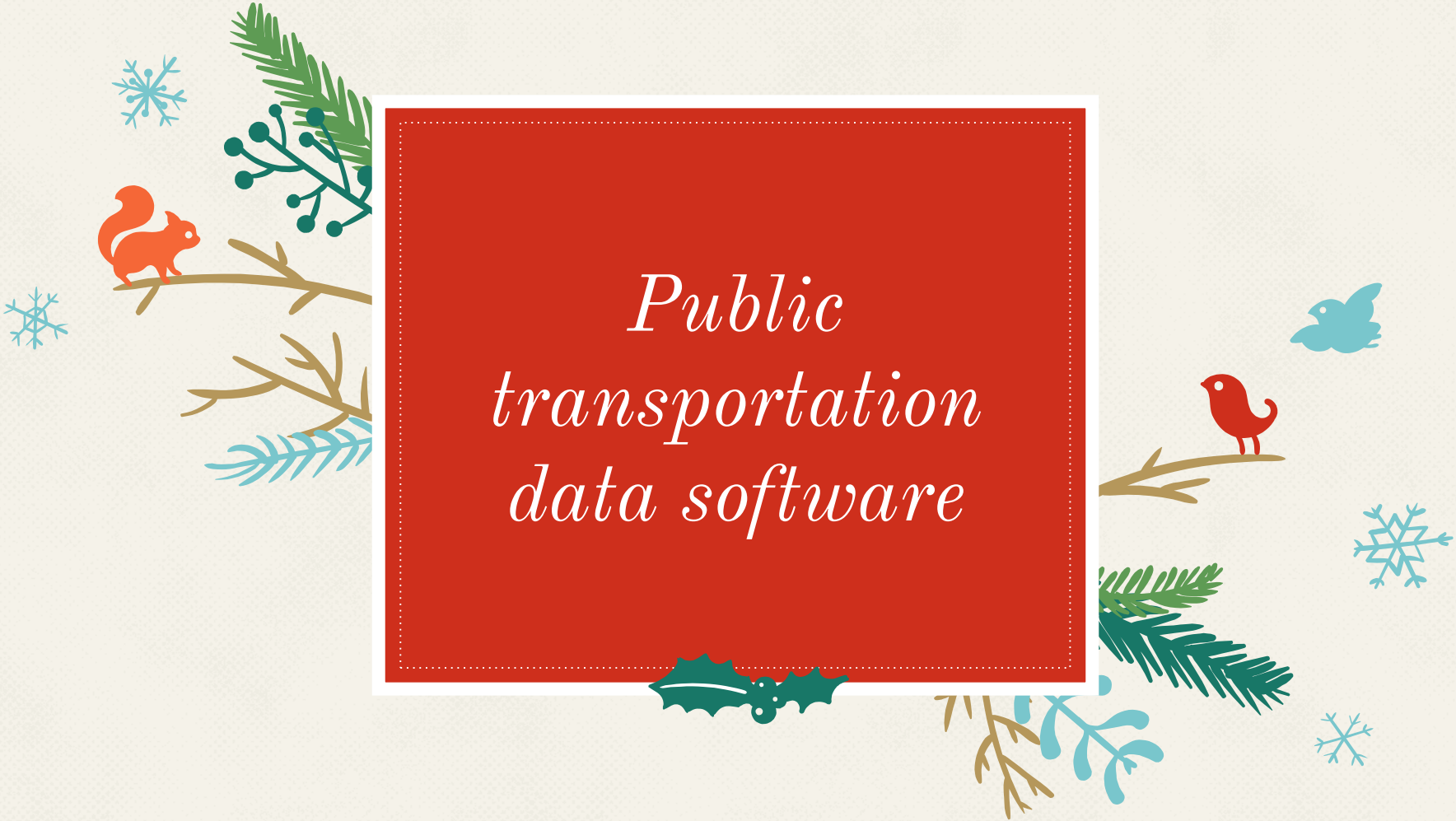

Public transportation data software

Hello!

We are group 9

Jovana, Andy, Quoc

Ho ho ho

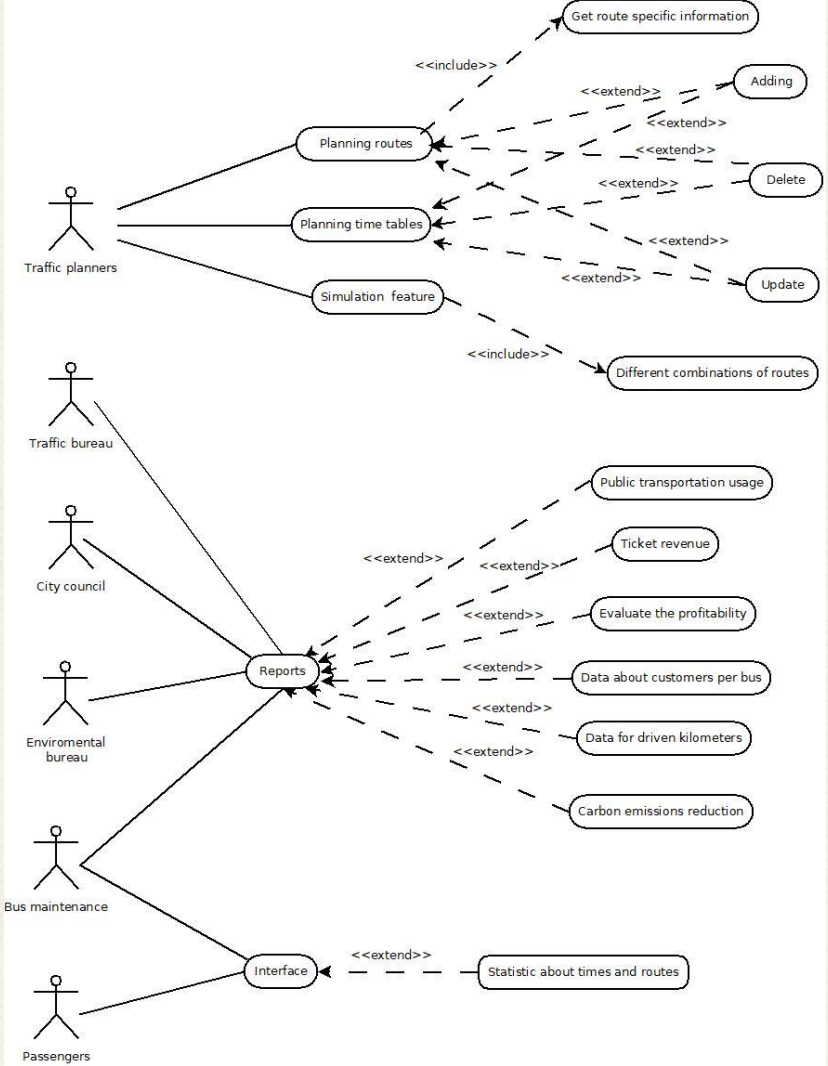
Once again, this is what we have done...

This is our process for phase 2

Diagrams

We will present Use Case, Class, and Navigation diagram

Use Case


Get route specific information
<<include>>
Adding
<<extend>>
<<extend>>
Planning routes
<<extend>>
Delete
<<extend>>
Planning time tables
<<extend>>
<<extend>>
Update
Traffic planners
Simulation feature
<<include>>
Different combinations of routes
Traffic bureau
Public transportation usage
City council
<<extend>>
Ticket revenue
<<extend>>
<<extend>>
Evaluate the profitability
Reports
<<extend>>
Data about customers per bus
Enviromental bureau
<<extend>>
Data for driven kilometers
<<extend>>
Carbon emissions reduction
Bus maintenance
Interface
<<extend>>
Statistic about times and routes
Passengers

Use Case: Check public transportation usage from report

❄ **Pre-condition:** There are public transportation currently in operation and being monitored to get data. At least one of the reports of the public transportation usage exists in the system and can be accessed from the city council's interface.

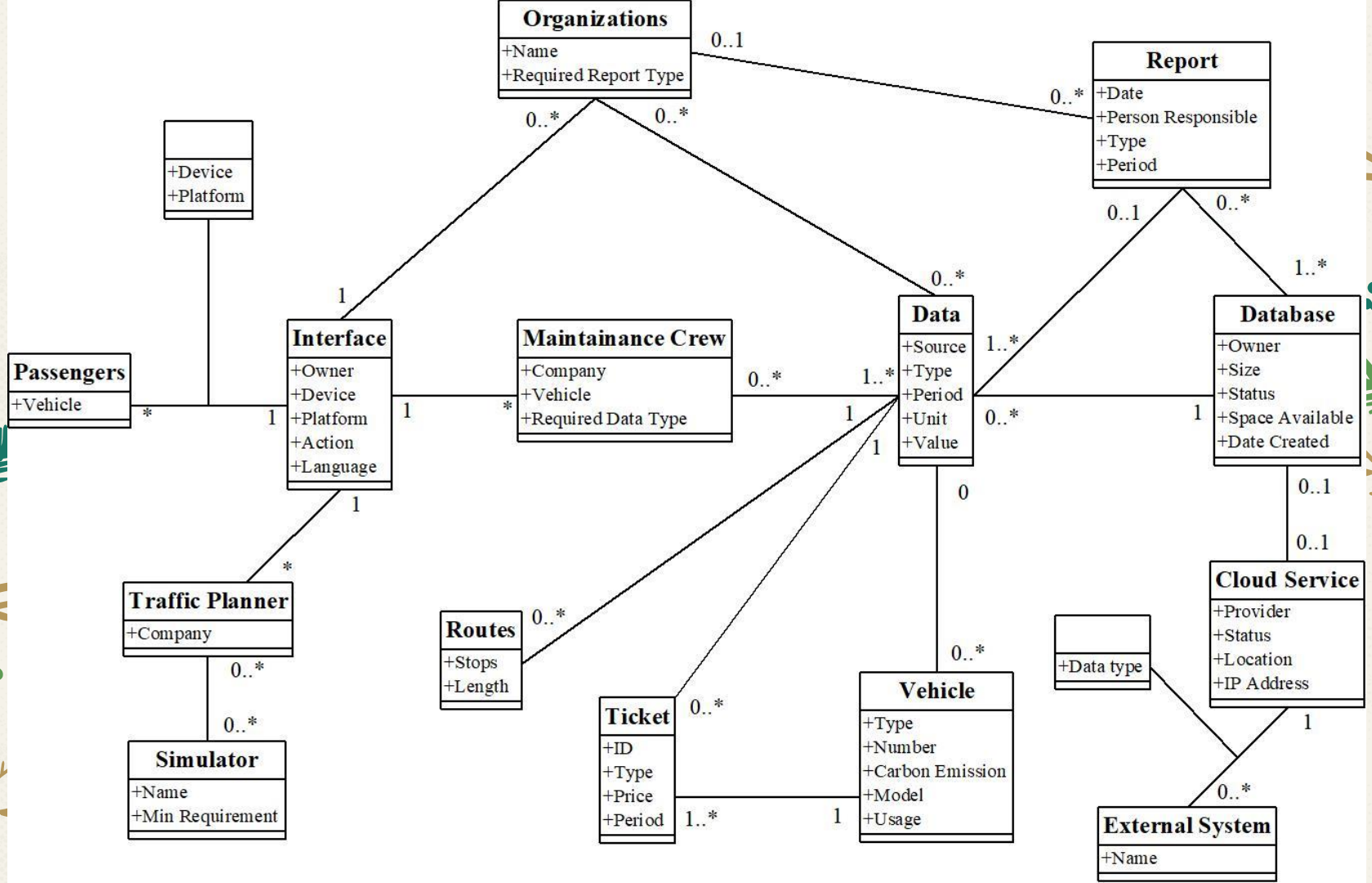
❄ **Description:** Staff from city council logs in to their interface. System checks if the account has enough permission to access the reports. The staff choose to view the report he/she wants from the report list.

Use Case: Check public transportation usage from report

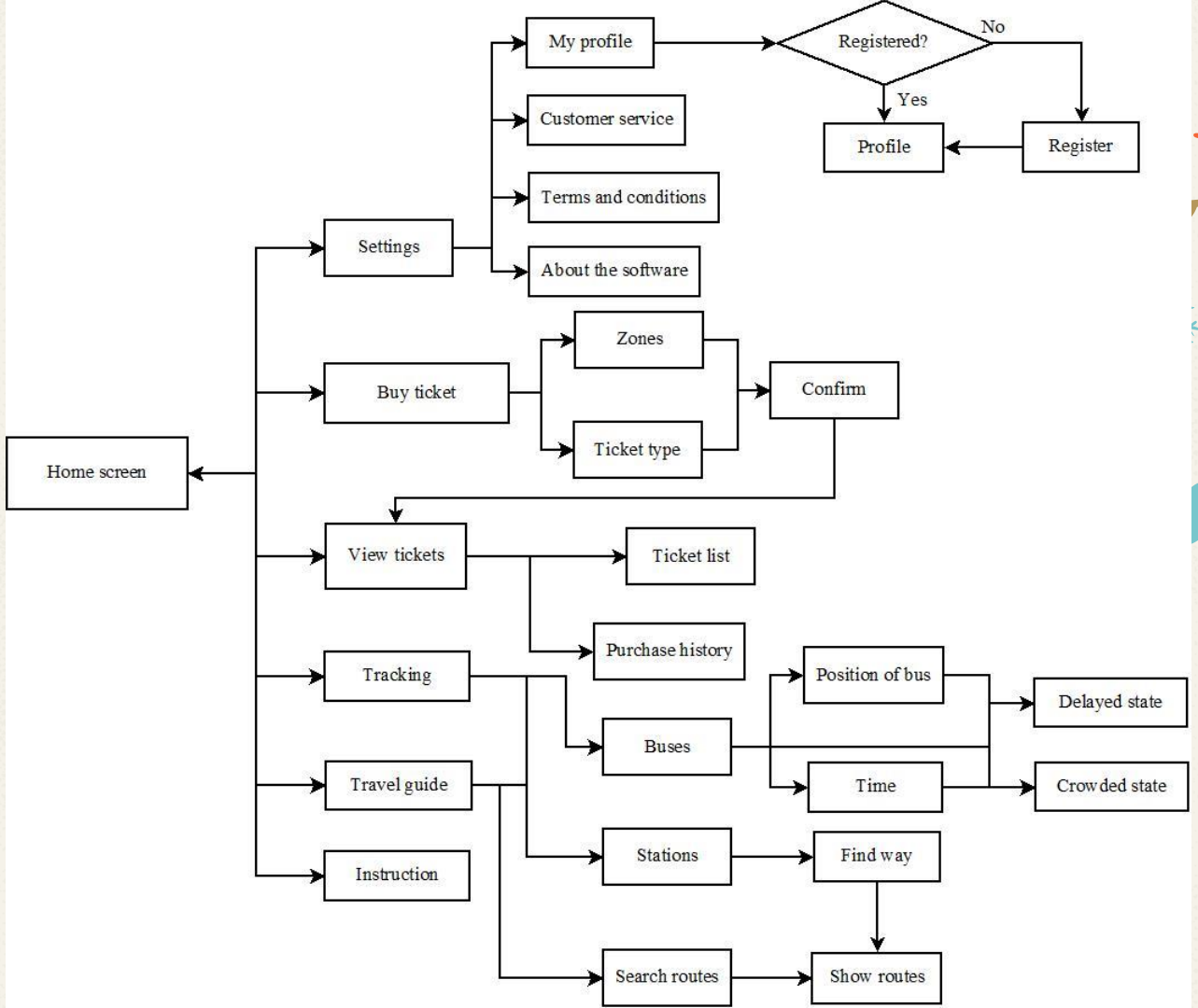
❄ **End result:** The report is displayed to the staff. The staff may then download, send the report, or analyze it with tools, but he/she must agree with the terms and conditions in advance.
❄ **Priority:** Important

Use Case: Check public transportation usage from report

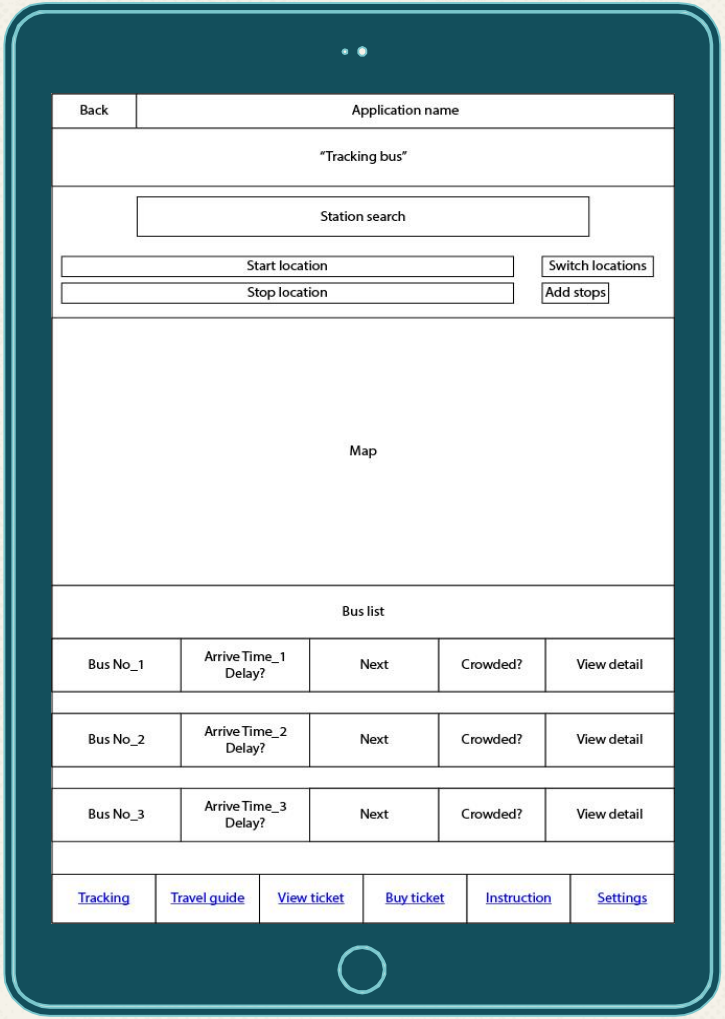
❄ **Exception 1:** The staff's account is locked or his/her permission is not enough.
❄ **Exception 2:** The staff can view the report but does not have enough permission to send or download it.
❄ **Exception 3:** The report is shown available to the staff, but it is removed from the database before the staff chooses to view it.
❄ **Exception 4:** The staff's computer does not have any compatible application to view the report.


Organizations
+Name
+Required Report Type
Report
+Date
+Person Responsible
+Type
+Period
+Device
+Platform
Interface
+Owner
+Device
+Platform
+Action
+Language
Passengers
+Vehicle
Maintainance Crew
+Company
+Vehicle
+Required Data Type
Data
+Source
+Type
+Period
+Unit
+Value
Database
+Owner
+Size
+Status
+Space Available
+Date Created
Traffic Planner
+Company
Simulator
+Name
+Min Requirement
Routes
+Stops
+Length
Ticket
+ID
+Type
+Price
+Period
Vehicle
+Type
+Number
+Carbon Emission
+Model
+Usage
Cloud Service
+Provider
+Status
+Location
+IP Address
+Data type
External System
+Name
0..1
0..*
1
1..*
*

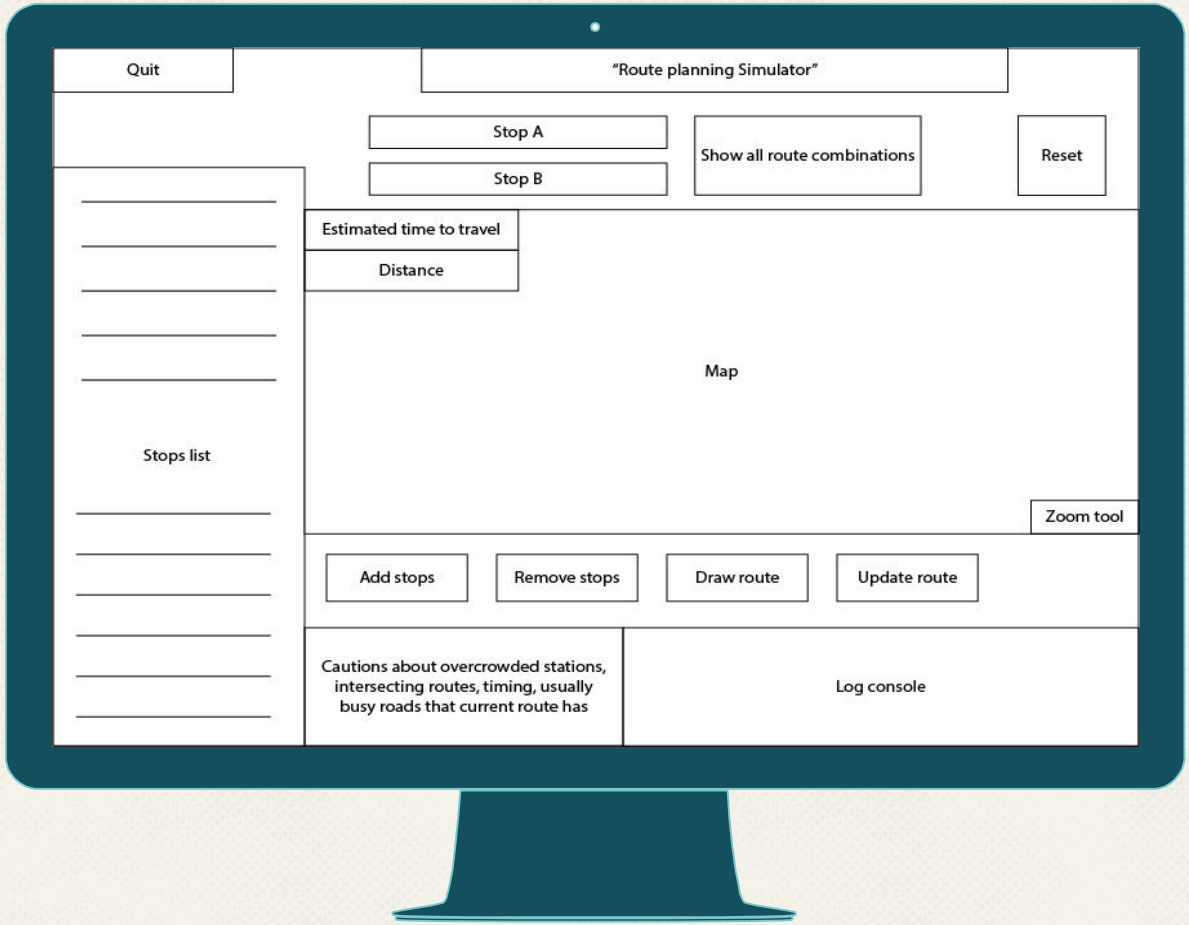
Navigation diagram



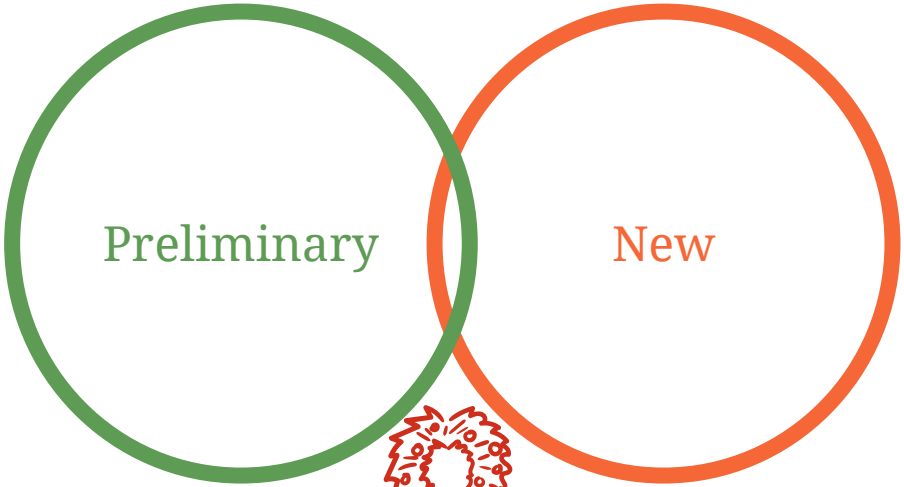
Tablet view


Back
Application name
"Tracking bus"
Station search
Start location
Switch locations
Stop location
Add stops
Map
Bus list
Bus No_1
Arrive Time_1
Delay?
Next
Crowded?
View detail
Bus No_2
Arrive Time_2
Delay?
Next
Crowded?
View detail
Bus No_3
Arrive Time_3
Delay?
Next
Crowded?
View detail
Tracking
Travel guide
View ticket
Buy ticket
Instruction
Settings

Desktop view



The final requirements consist of...



Frame story

- System can collect data about routes, times, and types of tickets
- System can update, add, and delete routes when planning route
- The simulator can run on low-setting computers
- System must have a separate interface for passengers

Bus passengers

❄ Users can see the real-time position of buses and approximated arrival time

❄ The system should let users to buy online ticket and store it on their device

❄ The route searching function should return values with 3 seconds during rush hours

❄ User's interface should at least has English and Finnish

Traffic planner

❄ The simulation process must be saved periodically to prevent system crashing or power cut

❄ The system can update automatically Tambester city map and notify where, what and when changes occur

❄ The stimulation result must be display in text form liked report and also a map including new route highlighted

❄ The optimization algorithm can be chosen by traffic planner

IT-Department

- The database can contain up to 100.000 users information
- The cloud service should operate stably, i.e. it is allowed to suspend once a month
- There is only one database

External systems

❄ Data sent to the system must be encrypted to ensure the security

❄ Connection to other systems should be stable 24/7

❄ System can receive data from external sources within the range of the city

❄ The system should use a secured channel for transfering data so that it will not conflict other with existing channels.

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Requirement "Users can see the real-time position of buses and approximated arrival time"

Bus passengers use their mobile and select the "Tracking" tab. They can either selection a station or search for a route from location A to location B. The system will display the buses available to the selected station or the nearest starting station. At the same time on the map, there will be the real-time locations of the buses coming to the station as well as the estimated time the buses will arrive.

Thank You